

We claim:

- 1 1. An apparatus comprising:
  - 2 first and second execution cores to operate in an FRC mode;
  - 3 an FRC check unit to compare results from the first and second execution cores
  - 4 and to store at least one result and a status to indicate if the results match;
  - 5 an error check unit to assert a signal to the FRC checker if a recoverable error is
  - 6 detected in the first or second execution cores; and
  - a timer to trigger an FRC recovery routine if the status indicates the results do not match and the error check unit does not assert the signal within a specified interval.
- 1 2. The apparatus of claim 1, wherein the FRC checker stores a result from the master  
2 execution core and discards the result from the slave execution core.
- 1 3. The apparatus of claim 2, wherein the FRC checker stalls the slave execution core if the  
2 status indicates the results do not match and triggers a countdown to the specified interval.
- 1 4. The apparatus of claim 4, wherein the specified interval represents a time for a  
2 recoverable error to be signaled to the error detector.
- 1 5. The apparatus of claim 1, wherein the FRC check unit includes a multiple entry buffer to  
2 store results and status indicators for multiple.

1 6. The apparatus of claim 2, wherein a number of entries for the buffer is selected to  
2 determined by a largest number of clock cycle to propagate an error signal to the error detector.

1 7. The apparatus of claim 1, wherein the FRC check unit includes a buffer to store results  
2 from the first and second execution cores and their status.

1 8. The apparatus of claim 7, wherein the recovery routine reads an uncorrupted result from  
2 an appropriate entry of the buffer if the recoverable error is detected within the specified interval.

1 9. An system comprising:  
2 first and second execution cores to operate in an FRC mode;  
3 an FRC checker to compare results from the first and second execution cores and  
4 to trigger a countdown interval if the results do not match; and  
5 an error detector to monitor error signals during the countdown interval and to  
6 disable the FRC checker if a recoverable error is detected before the countdown interval  
7 expires.

1 10. The system of claim 9, wherein the FRC checker includes a buffer to temporarily store  
2 results from at least one of the first and second execution cores.

1 11. The system of claim 9, wherein the FRC checker stalls one of the first and second  
2 execution cores if the results do not match.

1 12. The system of claim 9, further comprising a recovery unit to recover uncorrupted results  
2 from the first or second execution core, responsive to the error detector detecting a recoverable  
3 error.

1 13. The system of claim 12, further comprising a reset unit to reset the system, responsive to  
2 the FRC checker indicating an FRC error.

1 14. The system of claim 13, wherein the FRC checker indicates an FRC error if results from  
2 the first and second execution pipelines do not match and the FRC checker is not disabled before  
3 the countdown interval expires.

1 15. The system of claim 13, further comprising a memory device in which a recovery routine  
2 and a reset routine are stored.

1 16. The system of claim 15, wherein the recovery unit and the reset unit include pointers to  
2 the recovery routine and the reset routine, respectively.

1 17. A method comprising:

2 comparing results from a first and second execution core to detect an FRC error;  
3 if the results do not match, setting a first flag and initiating a countdown interval;  
4 monitoring an error signal for a recoverable error; and  
5 initiating a recovery routine if the error signal is asserted before the countdown  
6 interval expires.

1 18. The method of claim 17, further comprising:

storing a result from at least one of the first and second execution cores; and  
initiating a transaction to a shared resource if the first flag is not set.

19. The method of claim 18, further comprising initiating a reset routine if the error signal is  
not asserted before the countdown interval expires.

1 20. The method of claim 17, further comprising:

2 stalling one of the first and second execution cores if the first flag is set; and  
3 continuing to monitor the error signal from the stalled execution core.